UCN-7721B (2 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

Chemrisk 8/7 DSFd #3284

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No.	Author's Telephone No.	Acct. No	Date of Request
MS/ChR2-0261	6-0263	2366000 3	8/5/96

Unclassified Title: ENVIRONMENTAL ANALYSIS (K25/I-1-3-14; ITEM 11 OF 12)

Author(s): Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date):

☐ Journal Article (Identify Journal):

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☒ No ☐ Yes

Document will be distributed at meeting ☒ No ☐ Yes

Document has patent or invention significance ☒ No ☐ Yes (Identify)

Document has been previously released ☒ No ☐ Yes (Reference)

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): Abstract:

DOCUMENT: Level Category I

Signature Date

DOCUMENT REQUEST APPROVED (Division or Department)

Signature 8/5/96 Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution

☐ External Distribution

TID-4500 Category or Copies to OSTI

ANNOUNCED IN: ERA Atomindex (Available from NTIS)

M-3679 Category

ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
	Y-12 Central Files	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received	Date Initiated
	8/5/96

☐ Editor Date

☒ Patent Office Date

☐ Date

☐ Date

☒ CLASSIFICATIONS:

Title(s): U Abstract NA

DOCUMENT:

Level U Category -

Weapons Data - Sigma -

R.J. Fraser 8/5/96

Y-12 Classification Office Date

#3284

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:

☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

Technical Information Office 8/6/96 Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items = 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC — Item 11 of 12

Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 08/09/96

Document number none Date of document 12/2/75

Title and author (if document is unnumbered)

Environmental Analyses of USAEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, 7, 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class., Sent to DOE for approv.
Items 3, 4 - K-25 to release
Item 6 PGDP for release

L Thornton 7/30/96

This package consists of 12 items.

1.	Item 1	Letter, 12/2/75, From Hibbs to Hart concerning the Environmental Analysis of ERDA Facilities in Oak Ridge	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
2.	Item 2	Letter, 7/16/75, From Hart to Hibbs, Environmental Analysis	DOE generated document, requires classification review, then release by DOE
3.	Item 3	Letter, 4/2/75, From Hibbs to Hart, Environmental Analysis of ERDA Facilities in Oak Ridge	Signed by Hibbs, concerns K-25 information, release by K-25
4.	Item 4	Letter, 12/2/74, From Mitchell to J. C. Barton, et al., ORGDP Sections of the Environmental Analysis of USAEC Operations in Oak Ridge	Release by K-25
5.	Item 5	Letter, 9/5/74, From Hibbs to R. J. Hart, Environmental Analyses of AEC Facilities	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
6.	Item 6	Letter, 8/16/74, From Hopkins to RA Winkel, Comments on Draft - K-C-1182	PGDP generated document, will be released by PGDP then forwarded by K-25
7.	Item 7	Letter, 5/8/74, From Hibbs to Hart, Environmental Assessments for AEC Facilities and Programs	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
8.	Item 8	Letter, 4/4/74, From Hart to Hibbs, Environmental Assessments for AEC Facilities and Programs	DOE generated document, requires classification review and then release by DOE
9.	Item 9	Letter, 11/20/73, From Jordan to JM Case, et al., Environmental Analysis	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
10.	Item 10	Letter, 11/13/73, From Jordan to Attendees, Environmental Analysis	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
11.	Item 11	Letter, 11/8/73, From Jordan to JM Case, et al., Environmental Analysis	Y-12 generated document that contains X, K, and Y information, requires classification review by all three sites, then release by Y-12
12.	Item 12	Letter, 10/29/73, From Hart to RF Hibbs, Environmental Analysis	DOE generated document, requires classification review and then release by DOE

cy: S. S. Stief - please attend in my place.

R.A. WINKEL
SUPT., ORGDP.

RAW 11-09-73

UNION CARBIDE

INTERNAL CORRESPONDENCE

NOV 9 8 58 AM '73

NUCLEAR DIVISION

POST OFFICE BOX Y, OAK RIDGE, TENNESSEE 37830

To (Name) Division Location	Mr. J. M. Case Mr. F. L. Culler, Jr. Mr. G. R. Jasny Mr. W. J. Wilcox, Jr. Mr. R. A. Winkel 11/9/73	Date	November 8, 1973
		Originating Dept.	
		Answering letter date	
Copy to	Mr. P. C. Fourney Mr. R. F. Hibbs Mr. G. W. Horde Mr. P. R. Vanstrum	Subject	Environmental Analysis

Mr. Hart's letter to Mr. Hibbs, October 29, 1973, requests that we "undertake assembly of data and preparation of a preliminary draft report documenting the environmental analysis of all AEC operations in the Oak Ridge geographical area". To do this job properly will require considerable effort and attention.

As an initial step, I would like to meet with you and/or your designated representative for the purpose of establishing a working arrangement or task group to accomplish this job. Also, I would appreciate your thoughts on data and document review. It will be of the upmost importance that we provide a review system to assure that our information is factual and complete.

If possible, I would like to meet with you and/or your representative on November 12 at 1:30 p.m. in my office.

R. G. Jordan

RGJ:ayb

This document has been reviewed for classification and has been determined to be UNCLASSIFIED. w/respect to [illegible] & [illegible] matters.
Thomas W. Selby
ADC Signature
7/31/96
Date

APPROVED FOR PUBLIC RELEASE
[signature] 8/6/96
Technical Information Office Date

UCN-7721B
(2 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

Chemrisk 8/9

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No	Author's Telephone No.	Acct. No	Date of Request
MS/ChRZ-0260	6-0263	23660003	8/6/96

Unclassified Title: ENVIRONMENTAL ANALYSIS (K25/I-1-3-14; ITEM 10 OF 12)

Author(s) Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date): _____

☐ Journal Article (Identify Journal): _____

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☑ No ☐ Yes

Document will be distributed at meeting ☑ No ☐ Yes

Document has patent or invention significance ☑ No ☐ Yes (Identify) _____

Document has been previously released ☑ No ☐ Yes (Reference) _____

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): _____ Abstract: _____

DOCUMENT: Level _____ Category I

RGF
Signature _____ Date _____

DOCUMENT REQUEST APPROVED (Division or Department)

[signature] 8/5/96
Signature Date

Signature _____ Date _____

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution
☐ External Distribution
TID-4500 Category _____ or _____ Copies to OSTI
ANNOUNCED IN: ERA Atomindex (Available from NTIS)
M-3679 Category _____
ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
	Y-12 Central Files	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received _____ Date Initiated 8/5/96

[2] CLASSIFICATIONS:
Title(s): U Abstract NA
DOCUMENT:
Level U Category —
Weapons Data — Sigma —

[signature] 8/5/96
Y-12 Classification Office Date

☐ _____ Editor Date

[3] [signature] Patent Office Date

☐ _____ Date

☐ _____ Date

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:
☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

[signature] 8/6/96
Technical Information Office Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC — Item 10 of 12

Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 08/09/96

Document number none Date of document 12/2/75

Title and author (if document is unnumbered)

Environmental Analyses of U.S.AEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, 7, 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class., Sent to DOE for approv
Items 3, 4 - K-25 to release
Item 6 - PGDP for release

A Thornton 7/30/96

cy: J. F. Jamison

RAW 11-21-73

R.A. WINKEL
SUPT ORGDP.
Nov 16 4 07 PM '73

UNION CARBIDE

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX Y, OAK RIDGE, TENNESSEE 37830

To (Name) Attendees

Division

Location

Date November 13, 1973

Originating Dept.

Answering letter date

Copy to

Mr. J. M. Case
Mr. F. L. Culler, Jr.
Mr. J. A. Elkins
Mr. P. C. Fourney
Mr. R. F. Hibbs
Mr. C. C. Hopkins
Mr. G. W. Horde
Mr. G. R. Jasny
Mr. M. E. Ramsey
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

DPS 11/16

11/27

Subject: Environmental Analysis

On November 12, a meeting was held in the Office of Safety and Environmental Protection to discuss preparation of an Environmental Analysis Report for AEC operations in the Oak Ridge area in accordance with a letter of request from Mr. R. J. Hart to Mr. R. F. Hibbs dated October 29, 1973. Those in attendance were:

UCC-ND	ORNL	Y-12	ORGDP
H. H. Abee	T. H. Row	J. A. Parsons	D. M. Lang
R. G. Jordan	E. J. Witkowski	M. Sanders	J. H. Pashley
I. G. Speas			S. S. Stief

T. H. Row distributed information relating to the preparation of Environmental Impact Statements which included ORIAD 0510-19, the National Environmental Policy Act of 1969, Executive Order 11514, Council on Environmental Quality Guidelines, OMB Bulletin No. 72-6, Regulatory Guide 4.2, and the tables of content from two AEC Facility Environmental Statements. He also distributed a tentative outline of information and staff which he envisioned would be required to produce an Environmental Analysis Report (see attachment).

Mr. Row estimated that a job of this magnitude probably would cost in the order of 250–300 thousand dollars. His office can provide overall guidance for the project and handle the integration, assembly, and preparation of the environmental analysis. He suggested that each plant provide a team leader and a 4- to 6-man team to collect information required for the analysis and to prepare descriptive material on each installation for inclusion in the report. One additional team would need to be organized to cover the remaining

AEC installations in the Oak Ridge geographical area. He felt that obtaining data on individual releases within each plant might be the main problem, particularly with respect to the matter of dealing with classified information.

R. G. Jordan requested that each plant representative give consideration to the selection of a team leader and team members and tentatively proceed according to Mr. Row's recommendations. He suggested that the cost of each team's activities be borne by their respective plants and that the cost of overall environmental analysis and report preparation by Mr. Row's group be divided equally among the plants.

A meeting will be arranged between AEC-ORO representatives, Mr. Row, and members of the Office of Safety and Environmental Protection staff to formulate more definitive guidelines for preparation of the Environmental Analysis Report. Following this meeting, Mr. Row will develop the scope of the report for distribution to the working teams.

R. G. Jordan

RGJ:HHA:ayb

Attachment

ENVIRONMENTAL ANALYSIS OF AEC-OAK RIDGE OPERATIONS

A. Contractor Facilities to be Included
   1. ORGDP
   2. Y-12
   3. ORNL
   4. The Rust Engineering Company
   5. Agricultural Research Laboratory - UT
   6. Catalytic, Inc.
   7. Oak Ridge Associated Universities
   8. Union Carbide General Offices

B. Environmental Analysis Required for Each Facility where Applicable
   1. Liquid releases
      a. Sanitary wastes
      b. Process wastes
      c. Cooling tower blowdown
      d. Holding basins and runoff
      e. Radwaste storage
   2. Gaseous releases
      a. Lab and support facilities vents
      b. Heating plant stack
      c. Cooling tower drift
   3. Solid wastes
      a. Landfill operation
      b. Metal disposal
      c. Radwaste storage
   4. Heat dissipation
   5. Support facilities impact
      a. Water treatment
      b. Transmission facilities
   6. Community impact
   7. Effluent and environmental monitoring

C. Information Required
   1. Description of facilities and processes to provide release data for analysis
   2. Area meteorology
   3. Area hydrology
   4. Area ecology

D. Staff Required to Produce Report
   1. Task Group Leader - Representative from each organization with responsibility for overall report from his facility.
   2. Plant or facility engineer - Provide all descriptive material for impact and cost-benefit analyses.
   3. Ecologists - Aquatic and terrestrial disciplines to provide impact analysis on ecosystems.
   4. Health Physicist - Dose calculations to public from releases.
   5. Industrial Hygienist - Determine compliance with air and water pollution laws.
   6. Meteorologist - Provide area meteorology - use NOAA office.
   7. Specialists - Sociologist, resource commitment analysist, thermal release modeler, etc.
   8. Editorial and graphics assistance

E. Report Outline - Use AEC Immediate Action Directive No. 0510-29, dated July 6, 1972, pp. 16-20.

Summary - This would be a summary of the overall impact of the AEC-ORO facilities.

Background - Full description of all facilities with associated releases, benefits of operation, characterization of existing environment.

Environmental Impact - Assessment of environmental impact from ORO facilities.

Catch-all Sections - Unavoidable adverse environmental effects
Alternatives - here some work will probably be needed on alternate gas and liquid treatment systems
State, local or regional conflicts
Irreversible and irretrievable commitments of resources

Cost-Benefit Analysis - Evaluation of the benefits of ORO facilities compared to impact costs.

Agency Comments - Compilation of agency comments on the draft, added at the final statement stage.

UCN-7721B
(2 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No	Author's Telephone No.	Acct. No	Date of Request
MS/ChRZ-0257	6-0263	2366000 3	8/5/96

Unclassified Title: ENVIRONMENTAL ANALYSIS OF AEC FACILITIES (K25/I-1-3-14; ITEM 5 OF 12)

Author(s): Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date):

☐ Journal Article (Identify Journal):

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☑ No ☐ Yes

Document will be distributed at meeting ☑ No ☐ Yes

Document has patent or invention significance ☑ No ☐ Yes (Identify)

Document has been previously released ☑ No ☐ Yes (Reference)

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): Abstract:

DOCUMENT: Level Category I

RJF

Signature Date

DOCUMENT REQUEST APPROVED (Division or Department)

[signature] 8/5/96

Signature Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution

☐ External Distribution

TID-4500 Category ______ or ______ Copies to OSTI

ANNOUNCED IN: ERA Atomindex (Available from NTIS)

M-3679 Category

ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
Y-12 Central Files	Y-12 RC	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received

Date Initiated 8/5/96

2 CLASSIFICATIONS:

Title(s): U Abstract NA

DOCUMENT:

Level U Category —

Weapons Data — Sigma —

RJ Fraser 8/5/96

Y-12 Classification Office Date

☐ Editor Date

3 [signature] Patent Office Date

☐ Date

☐ Date

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:

☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

[signature] 8/6/96

Technical Information Office Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC — Item 5 of 12

Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 08/09/96

Document number none Date of document 12/2/-75

Title and author (if document is unnumbered)

Environmental Analyses of U.S.AEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, 7, 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class. Sent to DOE for approv
Items 3, 4 - K-25 to release
Item 6 - PGDP for release

A Thornton 7/30/96

By Posts on 9/12/74 (date)
Jace
Hutchins
Winkel
to handle or reply.

cy: S. S. Stief

RAW 9-13-74

UNION CARBIDE

UNION CARBIDE CORPORATION

NUCLEAR DIVISION

P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

R.A. WINKEL SUPT. GROUP

SEP 13 8 26 AM '74

September 5, 1974

United States Atomic Energy Commission
Post Office Box E
Oak Ridge, Tennessee 37830

Attention: Mr. R. J. Hart, Manager, ORO

Gentlemen:

Environmental Analyses of AEC Facilities

This letter is to inform you of the status of the environmental analyses of AEC facilities that you requested us to perform in your letters of October 29, 1973, April 4, 1974, and August 16, 1974. Although we have been working closely with members of your staff on planning the jobs to be done, I think it will be useful to summarize for you where things stand.

The tasks to be performed fall into the following general categories that we shall use in outlining the status of the effort.

(a) Characterization of the existing environment

(b) Descriptions of the facilities and processes

(c) Descriptions of normal effluents and their dispersions

(d) Descriptions of accidents and resulting effluents

(e) Assessment of the ecological effects

(f) Assessment of the social and economic effects

(g) Evaluation of alternative subsystems

(h) Cost/Benefit Analysis

With regard to the environmental analysis of AEC facilities in Oak Ridge, the characterization of the environment, Item (a), is being prepared by ORNL. All but the ecological characterization are expected to be completed in draft form in September. An ecological survey to provide the

missing information for Oak Ridge was started this summer. However, since seasonal variations are important, the survey will take a year, and this item cannot be completed until next summer.

The descriptions of Oak Ridge facilities, Items (b) through (d), are expected to be completed in September. Each installation, ORGDP, Y-12, and ORNL, is providing the descriptive information for its facility. The assessments of the effects of operation of the facilities, Items (e), (f), and (g), are underway by ORNL staff and will be completed within a month after adequate data are available. The cost/benefit analysis, Item (h), will be completed by ORNL as soon as all assessment sections are assembled.

We plan to complete a draft document on the Oak Ridge analysis by December, with assessments to the extent practical; the schedule developed in January 1974 had called for completion of the draft in November. Where practicable, the draft will reflect comparisons of effluent discharges with applicable air and water quality standards. Since the "baseline" ecology information will not be complete, reasonable judgements will be necessary based upon known effects of particular categories and types of effluents upon organisms known to, or likely to, inhabit particular sectors of the Oak Ridge environs. The draft document will be revised and improved to the quality of a draft environmental statement next summer when adequate ecological data are available. We feel that this approach to the preparation of the Oak Ridge Analysis, which has been reviewed with your staff, will result in a comprehensive document.

With regard to analyses of the AEC Paducah, Portsmouth and Fernald facilities, site visits were made to Fernald and Portsmouth on June 18 and 19 by J. F. Wing, AEC-ORO, J. R. McWherter, our project engineer, and P. S. Rohwer, staff member of our Environmental Sciences Division. A general outline and responsibilities were discussed with A. F. Pennak at Fernald and V. S. Emler at Portsmouth. Based on our experience and information provided by Pennak and Emler, manpower and cost estimates were made for these projects; the requirements for Paducah were assumed to be similar to those for Portsmouth. We estimate that it will require the following man-years of effort:

	Effort at Facility (man-years)	ORNL Assessment Effort (man-years)	Outside Consultants Effort (man-years)	Total Effort (man-years)
Portsmouth	1.4	2.4	4.0	7.8
Paducah	1.4	2.4	4.0	7.8
Fernald	1.8	2.3	3.1	7.2
Total	4.6	7.1	11.1	22.8

These estimates are based on the assumption that each facility will provide the characterization of their existing environment, Item (a), and the descriptive categories, Items (b) through (d). ORNL would make the ecological assessment, Item (e), and provide technical and editorial assistance on the entire document. Nearly all of the outside consultants' efforts would be on the ecological surveys, with a small fraction on archaeological and historical studies. We are awaiting funds and directions from the AEC before starting on these projects. Schedules for each statement can be established soon after the work is initiated.

Finally, work on the Gas Centrifuge Program environmental analysis has been initiated in response to your letter of August 16. The effort on this will be increased when the current ORGDP descriptive effort mentioned above is completed in September.

We would be pleased to discuss this effort in further detail if you desire.

Very truly yours,

R. F. Hibbs
President

RFH:MWR:kb

cc: P. C. Fourney
R. G. Jordan
C. J. Parks (4)
H. Postma (5)
M. W. Rosenthal (5)
P. R. Vanstrum (3)

UCN-7721B
(2 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No	Author's Telephone No.	Acct. No.	Date of Request
MS/ChRZ-0258	6-0263	2366000 3	8/5/96

Unclassified Title: ENVIRONMENTAL ASSESSMENTS FOR AEC FACILITIES AND PROGRAMS (K25/I-1-3-14; ITEM 7 OF 12)

Author(s): Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date): _____

☐ Journal Article (Identify Journal): _____

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☑ No ☐ Yes

Document will be distributed at meeting ☑ No ☐ Yes

Document has patent or invention significance ☑ No ☐ Yes (Identify) _____

Document has been previously released ☑ No ☐ Yes (Reference) _____

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): _____ Abstract: _____

DOCUMENT: Level _____ Category I

RJF
Signature _____ Date _____

DOCUMENT REQUEST APPROVED (Division or Department)

[signature] 8/5/96
Signature Date

_____ _____
Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution
☐ External Distribution
TID-4500 Category _____ or _____ Copies to OSTI
ANNOUNCED IN: ERA Atomindex (Available from NTIS)
M-3679 Category _____
ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
	Y-12 Central Files	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received	Date Initiated
	8/5/96

☒ CLASSIFICATIONS:
Title(s): U Abstract NA
DOCUMENT:
Level U Category -
Weapons Data - Sigma -

R.E. Fraser 8/5/96
Y-12 Classification Office Date

☐ _____ Editor Date

☒ [signature] Patent Office Date

☐ _____ Date

☐ _____ Date

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:

☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

[signature] 8/5/96
Technical Information Office Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC — Item 7 of 12

Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 03/09/96

Document number none Date of document 12/2/-75

Title and author (if document is unnumbered)

Environmental Analyses of U.S. AEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, (7), 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class., Sent to DOE for approv
Items 3, 4 - K-25 to release
Item 6 - PGDP for release

A Thornton 7/30/96

By Parks on 5/9/74 (date)
1 Case
1 Hopkins 5/14/74
1 Winkel
to handle or reply.

UNION CARBIDE

UNION CARBIDE CORPORATION
NUCLEAR DIVISION
P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

R.A. WINKEL
SUPT, ORGDP
MAY 13 9 09 AM

seeK-C-1182, Draft
ORGDP Sections of Environmental
Analysis of USAEC operations
in Oak Ridge, Tennessee —
to SSS 7/26/74

May 8, 1974

cy: S. S. Stief

RAW 5-13-74

United States Atomic Energy Commission
Attention: Mr. R. J. Hart, Manager, ORO
Post Office Box E
Oak Ridge, Tennessee 37830

Gentlemen:

Environmental Assessments for AEC Facilities and Programs

We have received your request of April 4 for support on Environmental Impact Assessments for the Paducah and Portsmouth Gaseous Diffusion Plants, Fernald, and the Gaseous Centrifuge Program, and are pleased to undertake the work.

It is our assumption that ORNL would have the responsibility for issuing the Environmental Statement in its final form, with the concurrence, of course, of the individual plant management and the AEC. Based on this approach, we would provide a Project Engineer, the necessary terrestrial and aquatic ecology professional staff, and necessary additional technical support. We estimate the ORNL level of effort for the four studies would be at the level of 6 man-years with a total cost of $280,000, and that we would require support from appropriate staff at each plant which is estimated to cost approximately $75,000 per plant, with the possibility that the Gaseous Centrifuge Program document might be some higher.

We believe a slightly more protracted schedule than you propose would be more realistic. With proper phasing, the four studies could be completed in the time period between July 1974 and December 1975.

We would be pleased to discuss this effort in further detail if you so desire.

Very truly yours,

R. F. HIBBS

R. F. Hibbs, President

RFH:ayb

cc: Mr. J. A. Elkins
Mr. P. C. Fourney - 2
Mr. G. W. Horde
Mr. C. J. Parks - 4
Dr. H. Postma - 2
Mr. P. R. Vanstrum - 3

UCN-7721B
(2 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No.	Author's Telephone No.	Acct. No.	Date of Request
MS/ChR2-0259	6-0263	2366000 3	8/5/96

Unclassified Title: ENVIRONMENTAL ANALYSIS (K25/T-1-3-14; ITEM 9 OF 12)

Author(s): Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date):

☐ Journal Article (Identify Journal):

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☒ No ☐ Yes

Document will be distributed at meeting ☒ No ☐ Yes

Document has patent or invention significance ☒ No ☐ Yes (Identify)

Document has been previously released ☒ No ☐ Yes (Reference)

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): Abstract:

DOCUMENT: Level Category I

RJF
Signature Date

DOCUMENT REQUEST APPROVED (Division or Department)

Signature 8/5/96
Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution
☐ External Distribution
TID-4500 Category or Copies to OSTI
ANNOUNCED IN: ERA Atomindex (Available from NTIS)
M-3679 Category
ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
	Y-12 Central Files	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received	Date Initiated
	8/5/96

☐ Editor Date

☒ Patent Office Date

☐ Date

☐ Date

☒ CLASSIFICATIONS:

Title(s): U Abstract NA

DOCUMENT:

Level U Category -

Weapons Data - Sigma -

R.A. Fraser 8/5/96
Y-12 Classification Office Date

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:

☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

Technical Information Office 8/6/96
Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC Item 9 of 12
Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 08/09/96

Document number none Date of document 12/2/75

Title and author (if document is unnumbered)
Environmental Analyses of USAEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, 7, 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class., Sent to DOE for approv
Items 3, 4 - K-25 to release
Item 6 PGDP for release

A Thornton 7/30/96

cy: J. F. Jamison
S. S. Stief
RAW 11-21-73

R.A. WINKEL
SUPT. ORSDP.
Nov 21 2 31 PM '73

UNION CARBIDE

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX Y, OAK RIDGE, TENNESSEE 37830

To (Name) Mr. J. M. Case
Division Mr. F. L. Culler, Jr.
Location Mr. G. R. Jasny
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel 11/27 KWS 11/21

Copy to Mr. J. A. Elkins
Mr. P. C. Fourney
Mr. R. F. Hibbs
Mr. G. W. Horde
Mr. P. R. Vanstrum

Date November 20, 1973

Originating Dept.

Answering letter date

Subject Environmental Analysis

APPROVED FOR PUBLIC RELEASE
C K Lee 8/6/96
Technical Information Office Date

Mr. Hart's letter to Mr. Hibbs dated October 29 requested that UCC-ND prepare a preliminary draft report documenting the environmental analysis of all AEC operations in the Oak Ridge geographical area. The letter directed that the costs for the project be absorbed within the current operating budgets for the three UCC-ND installations.

Mr. T. H. Row, Deputy Director of the ORNL Environmental Impact Reports Project, will provide guidance for the project and handle the preparation of the draft environmental analysis. Task groups have been formed at each installation to collect information required for the analysis and to prepare descriptive material on each installation for inclusion in the report. Mr. Row is scoping the report and a relatively firm cost estimate for the project will be available by January 1, 1974.

Cost accounts are being established at each installation for the accumulation of task group costs. A separate cost account is being established at ORNL to accumulate the costs of Mr. Row's work, which ultimately will be distributed equally among the three installations.

It is our objective to do an excellent job and to meet the requested completion date. Your support and attention to the completeness and accuracy of data and descriptive material provided by your representatives will be most helpful.

R. G. Jordan

RGJ:ayb

This document has been reviewed for classification and has been determined to be UNCLASSIFIED. w/respect to Rest of ORNL matters
Thomas W. Sellers
ADC Signature
7/31/96
Date

(12 1-86)

OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

DOCUMENT DESCRIPTION (Completed By Requesting Division)

Document No	Author's Telephone No.	Acct. No.	Date of Request
MS/ChR2-0256	6-0263	2366000 3	8/5/96

Unclassified Title: ENVIRONMENTAL ANALYSIS OF ERDA FACILITIES IN OAK RIDGE (K25/I-1-3-14; ITEM 1 OF 12)

Author(s) Requestor: Steve Wiley

TYPE: ☐ Formal Report ☐ Informal Report ☐ Progress/Status Report ☐ Co-Op Report ☐ Thesis/Term Paper

☐ Oral Presentation (identify meeting, sponsor, location, date): _____

☐ Journal Article (Identify Journal): _____

☒ Other (Specify): To Be Released to ChemRisk, Phase II

Document will be published in proceedings ☒ No ☐ Yes

Document will be distributed at meeting ☒ No ☐ Yes

Document has patent or invention significance ☒ No ☐ Yes (Identify) _____

Document has been previously released ☒ No ☐ Yes (Reference) _____

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): U Abstract: NA

DOCUMENT: Level U Category —

Signature 8/5/96 Date

DOCUMENT REQUEST APPROVED (Division or Department)

Signature 8/5/96 Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

DISTRIBUTION

☐ Internal Distribution

☐ External Distribution

TID-4500 Category _____ or _____ Copies to OSTI

ANNOUNCED IN: ERA Atomindex (Available from NTIS)

M-3679 Category _____

ANNOUNCE IN: ☐ AWDR (Available from OSTI) ☐ ANCR

Distribution:	UCN-7721B	DOE F-1332.15	Document
	Y-12 Central Files	Y-12 RC	Y-12 RC
TIO File	L.L. McCauley		
	S.W. Wiley		
	R.M. Keyser		

Distribution Remarks: Unlimited (ChemRisk)

APPROVAL AND RELEASE

Date Received | Date Initiated 8/5/96

☐ Editor Date

☒ 3 Patent Office 6 Aug 96 Date

☐ Date

☐ Date

☒ 2 CLASSIFICATIONS:

Title(s): Unclassified Abstract —

DOCUMENT:

Level Unclassified Category —

Weapons Date — Sigma —

R.F. Creigh 5 Aug 1996

Y-12 Classification Office Date

Contains no Y-12 Classified Matter

APPROVED FOR: ☐ Declassification ☐ Release subject to use of the following admonitory markings and conditions:

☐ Disclaimer ☐ Copyright ☐ Patent Caution ☐ Other

Technical Information Office 6 Aug 96 Date

Conditions/Remarks:

From I-1-3-14

ChemRisk/Shonka Research Associates, Inc., Document Request Form

# of Items 12

(This section to be completed by subcontractor requesting document) (Y-12)

J. Lamb / SRC — Item 1 of 12

Requestor / Document Center (is requested to provide the following document)

Date of request 07/25/96 Expected receipt of document 08/09/96

Document number none Date of document 12/2/75

Title and author (if document is unnumbered)

Environmental Analyses of U.S.AEC Operations in Oak Ridge (Special Project 1973-1975)

(This section to be completed by Document Center)

Date request received 7/29/96

Date submitted to ADC 7/30/96

Date submitted to HSA Coordinator 7/29/96

(This section to be completed by HSA Coordinator)

Date submitted to CICO 7/30/96 * 7/31/96 to Y-12 for release

Date received from CICO K-25 CICO 7/31/96

Date submitted to ChemRisk/Shonka and DOE

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

* Items 1, 5, 7, 9, 10, and 11 - Reviewed by X & K Classification
Sent to S. Wiley to process
Items 2, 8, and 12 - Reviewed by Class. Sent to DOE for approval
Items 3, 4 - K-25 to release
Item 6 - PGDP for release

A Thornton 7/30/96

UNION CARBIDE

UNION CARBIDE CORPORATION
NUCLEAR DIVISION
P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

cy: S. S. Stief
RAW 12-5-75

December 2, 1975

United States Energy Research and
Development Administration
Oak Ridge Operations
P. O. Box E
Oak Ridge, Tennessee 37830

Attention: Mr. R. J. Hart, Manager

Gentlemen:

I am writing in response to your letter of July 16, 1975 in which you inquired about what would be needed to upgrade the Environmental Analysis of ERDA Facilities in Oak Ridge to the status of a draft environmental statement.

As you know, we have completed our review of "The Preliminary Draft Environmental Analysis of Oak Ridge-ERDA Operations". Copies have been given informally to J. F. Wing of your staff. We will consider this draft to be "Official Use Only" until it is approved by UCCND and ERDA. In our opinion the current document, with some modification and editing, can be issued as an ERDA-ORO publication. We estimate that it can be ready to distribute in six months.

This document generally meets the guidelines for environmental assessments described in 10 CFR 11.7a, where the purpose of the assessment is defined as providing a basis for judging whether or not an environmental statement should be prepared in accordance with the precept in section 102(2)(C) of NEPA. If it is determined that ERDA should prepare a draft environmental statement, 10 CFR 11.55 describes it as an objective and meaningful evaluation of actions and their reasonable alternatives in light of all environmental considerations. As defined, we assume the evaluation should be somewhat comparable to those prepared for nuclear power reactors or proposed facilities of equal magnitude.

We have reviewed all past and present monitoring programs conducted by Y-12, ORGDP and ORNL and information available from a preliminary sampling program. This review has led us to the conclusion that a more

comprehensive sampling program will be required to upgrade the assessment to an environmental statement. This is contrary to the opinion expressed in our September 5, 1974 letter. While we currently have in hand much of the descriptive material necessary for a statement, essential data on surface water and biota characteristics are lacking. The three major facilities considered have all maintained monitoring programs for both radioactive and nonradioactive materials for many years. However, these programs have normally been directed at demonstrating compliance with local, state, and Federal standards, and as such, do not provide the more complete baseline data conventionally assembled for an environmental statement.

A comprehensive sampling program to characterize the surface water and biota is outlined in the attachment. The program is designed to cover calendar year 1976. It is essential that it extend for a one-year period to adequately account for the effects of seasonal variations. At the same time, the material relating to process releases should also be updated with a current status date of September 30, 1976. This sequence of activities would allow us to provide ERDA with a Draft Environmental Statement ready for public release on July 1, 1977.

An estimate of the total cost for the sampling program and the preparation of the draft environmental statement is enclosed. We recognize that the sampling program is costly, but it appears to be what is required for an adequate environmental statement. Since the program that we have laid out would start in January, we would like to discuss its implementation in the near future.

Your letter requested identification of any deficiencies in the routine environmental monitoring program. While some modifications to these programs have been identified by the assessment and are included as part of the proposed sampling program, we feel final recommendations of changes can best be made upon completion of this program.

We will be pleased to discuss this in more detail if you desire.

Sincerely yours,

R. F. Hibbs, President

RFH:THR:lg

Attachments

cc: P. C. Fourney
R. G. Jordan - RC
C. J. Parks
H. Postma
P. R. Vanstrum
File

bc: J. M. Case
R. A. Winkel✓

Proposed Sampling Program for Oak Ridge Reservation

The Preliminary Draft Environmental Analysis of Oak Ridge-ERDA Operations (PDES) identifies several point-source discharges to surface waters that exceed current recommended guidelines for potable waters and the protection of aquatic life. Non-point-source contaminants may also be adversely affecting water quality in some streams on the Oak Ridge Reservation. In addition to the adverse effects on water quality associated with current discharges, aquatic environs on and downstream of the Oak Ridge Reservation are being adversely affected by past releases of environmental pollutants. Levels of mercury in some fish species in Poplar Creek at K-25, for example, currently exceed the FDA limits of 0.5 ppm Hg for human consumption. The elevated mercury levels in fish and sediments in Poplar Creek are attributed to an accidental release of mercury from Y-12 several years ago. The distribution and magnitude of this mercury contamination downstream of Y-12 presently is unknown.

In order to assess both the environmental impact of non-radiological effluents on aquatic ecosystems and hazards to man from these discharges, a systematic, coordinated environmental sampling program of surface waters receiving effluents both directly and indirectly from Oak Ridge-ERDA facilities is proposed. Historic and current data from effluent monitoring programs at Oak Ridge-ERDA facilities are useful in calculating concentrations of known releases for determining compliance with water quality standards downstream of point-source discharges. To assess the environmental impact of effluents, however, constituents should be sampled for both concentration and total loading (i.e., flow weighted) at the point of release and downstream. The fate of non-radiological environmental contaminants should be determined by sampling particulates. In addition, systematic sampling of aquatic populations (benthos and fish) downstream of effluents needs to be done in order to assess the impact of discharges on aquatic ecosystems. Existing biological data from sampling programs described in the draft document consist of preliminary species lists of aquatic biota in streams and reservoirs that receive effluents from Oak Ridge-ERDA facilities. There currently is neither systematic biological sampling of aquatic populations on or downstream of the Oak Ridge Reservation nor monitoring of aquatic biota, such as fish, for non-radiological contaminants.

To obtain the data necessary to fully assess the environmental impact of Oak Ridge-ERDA Operations on surface waters on and downstream of the Reservation, we proposed that the existing effluent and water quality sampling programs conducted by the various facilities be upgraded and a biological sampling program for a one-year period be initiated at an early date. To facilitate monitoring the fate and affects of both planned and accidental discharges to the drainage basins on the Oak Ridge Reservation (i.e. Poplar Creek, including Bear Creek, White Oak Creek, McCoy Branch, Kerr Hollow Branch, and Scarboro Creek) and to

the Clinch River, we propose that all environmental sampling programs for Oak Ridge-ERDA facilities be centrally coordinated. This will provide flexibility in sampling that is necessary to respond to changes in facility operations and environmental conditions. It will allow for the standardization of sampling procedures and methods of analysis at all facility operations. This will ensure that the data collected in all sampling programs are comparable. Wherever possible, existing sampling stations and facilities would be utilized. The general recommendations for sampling of aquatic environs are:

I. Poplar Creek Drainage Basin

A. East Fork Poplar Creek (EFPC)

1. EFPC-1 (New Hope Pond, Y-12): The current monitoring program includes continuous strip chart monitoring of water for pH and conductance, with continuous proportional sampling and analyses for Cr, Li, Hg, Zn, Pb, Fe, Cd, U, F, SO_4, total P, PO_4, total N, NO_3, TDS, suspended solids, and TOC. Upgrade the current monitoring program to also include the following:

a) analyze continuous proportional samples for Al, Cu, and Ni.

b) continuous strip chart monitoring of D.O.; the current program of daily grab sampling for D.O. is insufficient to enable measurement of minimum daily concentrations.

c) daily analyses of BOD and COD based on continuous proportional sampling.

2. EFPC-2: This temporary station should be located between the RUST Water Treatment Plant and the Oak Ridge Sewage Treatment Plant. Chemical analyses of water will demonstrate effluent contributions to EFPC from Rust Engineering Company. In conjunction with population studies, sediment analyses, and analyses of aquatic organisms, these data will provide sufficient data for an assessment of additive impacts from RUST and Y-12 discharges into EFPC.

The sampling program should include the following parameters:

a) continuous strip chart monitoring of H_2O for pH, D.O. and specific conductance.

b) continuous proportional samples, composited monthly and analyzed for suspended solids and those elements analyzed for at EFPC-1, since high concentrations of some of these constituents were measured during 1974 at a nearby station.

c) Biological sampling, as discussed in the introduction

1. Quarterly collection and analysis of benthic organisms and fish tissues for Hg, Cd, Pb, Zn, Cu, Cr, Ni and U.

2. Population studies of resident and non-resident organisms.

d) Chemical analyses of surface sediment samples for Hg, Cd, Pb, Zn, Cu, Cr, Ni and U.

3. EFPC-3: Temporary station, located downstream from the Oak Ridge Sewage Treatment Plant, to determine effluent contributions by this facility. Parameters sampled should include:

a) Analysis of same elements as at EFPC-1.

b) Continuous strip recordings of D.O., pH, and specific conductance.

c) continuous proportional samples, composited and analyzed for NO_3, NH_4, TDS and suspended solids.

d) Residual Cl, BOD, and COD should be analyzed daily, based on continuous proportional sampling.

4. EFPC-4: Temporary station located immediately upstream from the confluence with Bear Creek; results of chemical and biological sampling and analyses would indicate additive effects of all point source discharges on water quality, and aquatic organisms in East Fork Poplar Creek. Sampling should include the following:

a) continuous strip chart recording of pH, D.O. and specific conductance.

b) continuous proportional samples composited and analyzed for the same constituents measured in New Hope and Bear Creek.

c) Biological sampling and analyses (as discussed in introduction)

1. Quarterly collection of fish and benthos for heavy metal tissue analyses (Hg, Cd, Pb, Zn, Cu, Cr, Ni and U).

2. Quantitative population studies of resident and

d) surface sediment analyses for trace metals (quarterly).

5. EFPC-5: Temporary station located downstream from confluence with Bear Creek, to determine the relative effluent contributions of each creek, the resulting additive impacts on the aquatic environment in this portion of East Fork Poplar Creek, and an estimate of the chemical loading of Poplar Creek by East Fork Poplar Creek.

   The sampling program suggested would be identical to that for EFPC-4.

6. Control Station: Locate at existing weirs on Walker Branch; conduct chemical and biological sampling to enable assessment of aquatic impacts of point-source effluent discharges in East Fork Poplar Creek and Bear Creek based on comparisons with ambient conditions in an aquatic environment which is relatively isolated from effluent discharges. Since the head waters of EFPC and Bear Creek essentially consist of effluents, it is necessary to establish the control station on a separate but comparable stream. The similarity of EFPC, BC and Walker Branch with respect to geological and drainage characteristics would enable a valid comparison of environmental conditions in Bear Creek and East Fork PC with the ambient conditions of Walker Branch.

B. Bear Creek (BC)

1. BC-1: Temporary station located immediately downstream from Y-12 waste dump areas, to determine effluent loading and aquatic impacts of all discharges in Bear Creek in this area. Previous sampling below these discharges has indicated the sampling program should include the following:

   a) continuous strip chart monitoring of water for pH, D.O. and specific conductance.

   b) continuous proportional water samples, composited and analyzed for Cr, Li, Hg, Zn, Pb, Fe, Cd, U, F, SO_4, PO_4, total P, total N, NO_3, TDS, suspended solids and TOC; BOD and COD should be analyzed daily, based on continuous proportional sampling.

   c) biological sampling (see introduction)

      1. quarterly collection and analyses of benthic organisms and fish tissues for heavy metals specified in water samples (b above).

2. quantitative population studies of resident and non-resident organisms.

d) quarterly chemical analyses of surface sediment samples for heavy metals (b above).

2. BC-2 (Existing station on Bear Creek Road): The current monitoring program is identical to that for EFPC-1 (New Hope Pond). Upgrade this program to also include:

a) analyses for same parameters as at BC-1

b) continuous strip chart monitoring of D.O.

c) daily analyses of COD and BOD based on continuous proportional sampling

d) biological sampling

1. quarterly collection and analyses of benthic organisms and fish tissues for heavy metals.

2. quantitative population studies of resident and non-resident organisms.

e) surface sediment analyses for metals

C. Poplar Creek (PC)

1. PC-1 (located between the confluence with EFPC and Blair Bridge): The current monitoring program includes continuous strip chart monitoring of water for pH, D.O. and specific conductance, with continuous proportional sampling and analyses for Cd, CN, Cu, F, Hg, Mn, Ni, U, Zn, NO_3, SO_4, NH_4, TDS and suspended solids; sediment core samples are analyzed for trace metals. Upgrade this program to also include the following:

a) daily measurement of BOD and COD based on continuous proportional sampling, during periods of unidirectional flow in Poplar Creek, for a limited period of time. Continuous proportional sampling and analyses for Li.

b) Biological sampling

1. tissue analyses of benthic organisms and fish for Hg, Cd, Pb, Zn, Cu, Cr, Ni and U.

2. population studies of resident and nonresident organisms.

c) include surface sediment analyses in current core sediment sampling program (< 0.2μ particle size).

2. PC-2 (mouth of Poplar Creek): The current monitoring program is identical to that conducted at PC-1, and should be upgraded as such, to enable assessment of chemical and biological impacts of ORGDP effluent discharges in Poplar Creek.

3. PC-3: Temporary control station located on Poplar Creek upstream from the confluence with the East Fork of Poplar Creek and above the tidal influence caused by fluctuations in the level of Watts Bar Reservoir. This station will provide data on chemical loading to the lower end of Poplar Creek at K-25 from the main branch of Poplar Creek which receives acid mine drainage and sewage effluents. The sampling program suggested would be identical to that recommended for EFPC-4.

II. White Oak Creek Drainage Basin

A. White Oak Creek (WO)

1. WO-1* (downstream from sanitary waste treatment area): Establish a temporary station downstream from the effluent outfall to determine chemical loading and biological impacts of all ORNL outfalls on White Oak Creek. The sampling program should include the following:

a) continuous strip recording of pH, D.O. and conductance to demonstrate maximum and minimum concentrations /24 hrs.

b) daily analyses of BOD, COD, NH_4, suspended solids and residual chlorine based on continuous proportional sampling.

c) continuous proportional samples analyzed for Cr, Zn, Pb, Hg, Cd, NO_3, P, PCB's, Cu, Mn, and phenols to enable impact assessment of ORNL point source discharges on White Oak Creek water quality.

---

*Current plans for ORNL monitoring include proposed stations on Melton Branch and White Oak Creek for continuous monitoring of pH. The location of the pH stations coincide with the locations suggested for MB-1 and WO-1 in this proposal; subsequent to approval and installation of the pH stations monitoring could be upgraded to include the recommended sampling program.

d) biological sampling between WO-1 and WO-2 (weir).

1. tissue analyses of benthos and fish for heavy metal concentrations (Hg, Cd, Pb, Zn, Cu, Cr, Ni and U).

2. population studies

e) surface sediment collection and analyses between WO-1 and WO-2, for Hg, Cd, Pb, Zn, Cu, Cr, Ni and U.

2. WO-2 (at existing weir): The current monitoring program includes continuous strip chart recording of pH, D.O., conductivity, temperature and flow. Upgrade this program to also include the same parameters and sampling frequencies for water quality analyses as discussed for WO-1, to determine effects of all point-source and non-point-source ORNL discharges on water quality of White Oak Creek.

B. Melton Branch (MB)

1. MB-1* (7904 sewage treatment plant): Current monitoring is conducted in the sewage outfall by non-proportional sampling; establish a temporary station downstream from the outfall and include the following sampling in order to determine instream impacts of the facility:

a) continuous strip recording of pH, D.O. and conductance to demonstrate maximum and minimum concentrations /24 hrs.

b) daily analyses of BOD, COD, NH_4, suspended solids and residual chlorine based on continuous proportional sampling.

c) continuous proportional samples analyzed for Cr, Zn, Pb, Hg, Cd, NO_3, P, PCB's, Cu, Mn, and phenols to enable impact assessment of ORNL point-source discharges on Melton Branch water quality.

d) Biological sampling between MB-1 and MB-2.

1. Quarterly tissue analyses of benthos and fish for heavy metal concentrations.

---

*Current plans for ORNL monitoring include proposed stations on Melton Branch and White Oak Creek for continuous monitoring of pH. The location of the pH stations coincide with the locations suggested for MB-1 and WO-1 in this proposal; subsequent to approval and installation of the pH stations monitoring could be upgraded to include the recommended sampling program.

2. Population studies.

e) surface sediment collection analyses between MB-1 and MB-2.

2. MB-2 (weir): The current monitoring program includes continuous strip chart monitoring of water for pH, D.O., flow, and temperature. Upgrade this program to include the same parameters and sampling frequencies for water quality analyses as for MB-1, in order to determine additive effects of point-source and non-point-source ORNL discharges on Melton Branch.

C. White Oak Lake (WOL, Dam): water quality, sediment and biological analyses to determine additive effects of ORNL effluents on the drainage basin.

a) continuous strip chart recording of D.O., pH, and conductance.

b) continuous proportional samples analyzed for Cr, Zn, Pb, Hg, Cd, NO_3, P, PCB's, Cu, Mn and phenols.

c) daily analyses of BOD, COD, NH_4, suspended solids and residual chlorine based on continuous proportional sampling.

d) biological sampling in WOL (same as for White Oak Creek and Melton Branch).

e) surface sediment sampling and chemical analyses for trace metals in White Oak Lake.

D. Control: Locate a temporary station on Walker Branch Embayment, to serve as a relatively non-polluted control for White Oak Lake, Scarboro Embayment (SE) and Roger's Quarry (RQ). The sampling program would be identical to those described for WOL, SE and RQ, to enable comparison of data.

III. Scarboro Creek - McCoy Branch Drainage Basin

A. Scarboro Embayment: Sampling program should include the following, to determine effects of Kerr Hollow effluents (point source and non-point source) on the biological and chemical environment of Scarboro Embayment, which is accessible for public use.

1. SE-1: (Kerr Hollow): continue current monitoring program and possibly upgrade to increase frequency.

2. SE-2: locate a temporary station at the culvert adjacent to Carbide Park, and include the following:

   a) continuous strip chart recording of D.O., pH and conductance.

   b) continuous proportional sampling for TDS, Zr, suspended solids, Li, Al, Mn, Hg, Zn, U, total N, PO_4, and pesticides.

   c) biological sampling as discussed for other stations.

   d) surface sediment collection and analyses for trace metals as discussed for other stations.

B. Roger's Quarry

1. RQ-1: upgrade current monitoring program to include the following:

   a) continuous strip recorder monitoring for pH, D.O., and specific conductance.

   b) continuous proportional sampling and analyses of water for Cu, Zn, Pb, Hg, Cd and sulfur.

   c) biological sampling

      1. tissue analyses of fish and benthos for heavy metals

      2. population studies of resident and non-resident organisms.

   d) surface sediment collection and analyses as discussed for other stations.

IV. Clinch River

1. Control (water quality): locate temporary station at Oak Ridge sanitary water intake to determine water quality upstream from all Reservation operations. Sampling should include the following:

   a) continuous strip chart recording of pH, D.O. and conductance.

   b) continuous proportional sampling and analyses for Cd, Cs, Cu, CN, Pb, Mn, Hg, Ni, Zn, U, F, TDS, NH_4, suspended solids, SO_4, NO_4, COD, and BOD.

2. CR-1 (Melton Hill Dam): Obtain available data to determine water quality upstream from ORNL outfalls. Continue current monitoring program.

3. Control: Locate temporary station for Clinch River, above Melton Hill Dam (CR-1), to determine river conditions upstream from White Oak Lake discharge sampling should include the following:

   a) biological sampling (see introduction).

      1. tissue analysis of benthos and fish for heavy metals.

      2. population studies of resident and non-resident organisms.

   b) surface sediment analyses for Hg, Cd, Pb, Zn, Cu, Cr, Ni and U.

4. CR-2 (potable H_2O pumping station, ORGDP): No suggested changes. The current monitoring program includes continuous strip chart recording of pH, D.O., and specific conductance, with continuous proportional sampling for Cd, Cs, Cu, CN, Pb, Mn, Hg, Ni, Zn, U, NO_4, SO_4, NH_4, Fl, TDS and suspended solids.

5. CR-3: (RCW pumping station, ORGDP): No suggested changes. The current monitoring program is identical to that conducted at CR-2.

6. CR-4: locate temporary station below last outfall at ORGDP;

   a) sample and analyze water for all compounds included at other stations, using the same methods and frequencies.

   b) biological sampling (as discussed for other stations).

      1. tissue analyses of benthos and fish tissues for trace metals.

      2. quantitative population studies.

   c) surface sediment analyses for trace metals.

Summary of Estimated Cost for
Draft Environmental Statement

	FY 1976	FY 1977
Sampling Program[1]		
ORGDP	128,000	98,000
Y-12	280,000	175,000
ORNL	242,000	198,000
Statement Preparation[2]	86,000	144,000
	736,000	615,000

[1]Sampling program costs are distributed on the basis of the physical relation of the facility to the surface water system under investigation, i.e., ORNL would bear all costs on White Oak drainage basins.

	Thousands
1. Capital	180
2. Chemical Analysis	
Water from existing stations	119
Water from temporary stations	158
Sediments and biota	340
3. Maintenance of stations and sample collection	99
4. Professional Staff	150
5. Data Management	75
	1121

[2]Statement preparation costs would be evenly distributed among the three facilities.